UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

MAY 12 2000

Reply To
Attn Of: EC O-088

Mr. Jeff L ufle
U.S. Arm Corps o Engineers, Seattle District
P.O. Box 3755
Seattle, W ashingto 98124

Dear Mr. aufle:

W have re iewed the draft Environmental Assessment (EA) prepared for the Chief Joseph Da n Dissol ed Gas Abatement Project, pursuant to our responsibilities under the Clean Water Act. the Nat onal Environmental Policy Act, and Section 309 of the Clean Air Act.

Th project described and evaluated in the EA would move a long way toward complianc with wa ter quality standards by constructing deflectors at Chief Joseph Dam and transferrin power roduction to Grand Coulee Dam. The changes at Chief Joseph Dam are designed t allow e cess water to be spilled to substantially reducing the entrainment of total dissolved as. At t e same time, power production would be transferred to Grand Coulee Dam to take ad antage o its large power generation capacity and eliminate spill there. Both componen s of the roject should result in improved water quality in the mid-Columbia.

W support these efforts as they move Grand Coulee Dam and Chief Joseph Dam closer to meeting water q ality standards within the main stem of the Columbia. However, information in the EA uggests hat the proposed project would not, by itself, result in compliance with water quality sta dards (V QS) and that additional efforts will be necessary to meet the total dissolved gas levels et forth n the WQS of both the State of Washington and the Colville Confederated Tribes. T e EA ide tifies a number of projects that are not being pursued at this time, but appear to be effor s that w uld potentially lead to even lower gas level when combined with the proposed roject. lternatives 11, 12, 13 and 14 appear to have some real strengths in working toward ac ievemen of WQS. These projects also would help in ameliorating existing temperatu e and fis passage problems on the mid-Columbia. We strongly urge the Corps of Engineers o pursue these efforts (as well as other alternatives necessary to meet WQS) and recommen that the decision document for this proposed project reflect a firm commitment to do so. Such commit nent would support the issuance of a Finding of No Significant Impact since the propos d projec , as a stand alone project, would not result in compliance with WQS.

Th enclose detailed comments are provided in the interests of strengthening and clarifying i formatic n/discussions in the EA so that the final version provides the public with a more com lete und rstanding of the relevant information and analyses related to the decision to implement the proje t.

Comments on Chief Joseph Dam Dissolved Gas Abatement Project - Draft Environmental Assessment - March 2000, prepared by the U.S. Army Corps of Engineers (COE).

➜ Page 7 Paragraph 1. discusses the downstream limits of benefits due to TDG abatement measures taken at the project complex. "Effects are not expected below Priest Rapids (river mile 397)." The basis for this statement should be explained to help establish the rationale for overall review of the document. In addition, the recent COE modeling effort done for TDG production at Grand Coulee Dam (GCD) and Chief Joseph Dam (CJD) (as well as others) and results from that effort should be referenced in this paragraph and presented in greater detail later in the document (e.g., on page 15). The relationships among gas abatement measures planned or underway downstream should be incorporated into the EA to address "system-wide evaluation."

➜ Pages 9 and 10. The hydraulic capacity of the CJD powerhouse is listed as about 40 kcfs less than that of GCD. The EA is not clear whether alternatives evaluated used this difference in capacity as a baseline condition (i.e., how is this lower hydraulic capacity used in determining operational options and in conducting modeling). Since CJD is a run-of-the-river dam, this should be clarified and the power generation relationship between CJD and GCD explained in greater detail in order that the alternatives can be better understood.

For example, if both GCD and CJD are operated at maximum hydraulic capacity at a flow of 260 kcfs (the maximum for the GCD powerhouse) then it appears that CJD would be required to spill inflow equal to the amount exceeding its powerhouse hydraulic capacity, about 40 kcfs. Given these flow and operational conditions, and after installation of deflectors at CJD, the generation of TDG would not be expected to exceed from about 113% to117% (per graph on page 39 and depending on forebay concentration). Operational scenarios, need to be included and explained.

Also, the EA states that the WA state Water Quality Standard (WQS) for TDG is 110% for flows of up to 241 kcfs. The graph on page 39 suggests that, under the same operational and structural conditions noted in the previous paragraph, at a flow of 241 kcfs, CJD would spill about 20 kcfs and the TDG levels would be expected to be between about 107% and 112% (depending on inflow TDG concentration). Evaluation of options such as this would assist in evaluating attaining compliance.

➜ Page 11. Figure 2.1.2-1 The flood control rule curve for drafting at GCD is presented in graph form. This graph should be more thoroughly explained. Understanding this curve is important to understanding operational requirements and practices at GCD. Further, this curve appears to be a baseline condition assumed in the alternatives evaluated in the EA. To understand the alternatives described in the EA the reviewer should understand Figure 2.1.2-1. In addition, promising alternatives are rejected in the EA primarily because this rule curve (and for other dams in the system) would need to be revised. To understand the basis of these rejections, this rule curve and its relationship to Columbia drainage flood control, flow augmentation, and operation of other flood control projects should be described. This would

➜ Page 18. Section 3.2.2 Side Channel (Alternative 12). This alternative raises the issue of anadromous fish passage at CJD by stating that construction of a side channel could foreclose on that option. The EA should address combined TDG and fish passage alternatives. A concern identified from review of the EA is that the adoption of the preferred alternative may foreclose or postpone consideration of fish passage at CJD. Evaluation of passage should be included in this EA along with an analysis of whether alternatives being considered will impair or encourage future development/construction of fish passage structures.

➜ Page 20. Section 3.2.9 Unplug Sluices (Alternative 10). This alternative includes a statement that "...deep withdrawal of cold water in the summertime would impact biological productivity [negatively] downstream." Since high river temperature in summertime is an issue downstream of CJD, the basis for this statement should be explained. Later in the EA, the release of cold water during the summer season is identified as a benefit to anadromous (and possibly other) species (see Section 3.4.4), seemingly contradicting the implied negative effects attributed to this alternative.

➜ Page 21. Section 3.4.1 Spill During Maximum Power... (Alternative 9). This alternative would reduce TDG loading at both GCD and CJD and could be implemented prior to construction of structural changes. It is rejected on the basis of "...large anticipated daily fluctuations in river levels and flows during maximum power generation periods." The basis of rejection should be clarified.

➜ Page 21. Section 3.4.2 Swap Power... (Alternative 11). This alternative for maximum power production at the GCD/CJD complex using system reimbursements is promising and is stated to be "...adjusted as the operational change alternative with Grand Coulee Dam that is carried forth in the current analysis." However, it is not clear, when reviewing the preferred alternative, how this operational option has been incorporated. Likewise, it is not clear how this operational change would be implemented. Explanation within the EA would confirm the conclusions of this alternative.

➜ Page 21. Section 3.4.3 Raise Control Flows at The Dalles (Alternative 13). This alternative is rejected on the basis that it "...may require a new system flood control study with emphasis on the *stage damage*" (italics added for emphasis). This section states that an increase of only 10 kcfs control flow at The Dalles would substantially reduce spring draft at GCD (spring draft being one of the largest contributors of TDG from GCD and CJD). Even though "...outside the scope of this study," this option should be described further. In particular, the basis for the target of 450 kcfs at The Dalles should be clarified. Since achievement of the 110% WQS is central to this review of the EA, options such as this which are promising should be developed for evaluation by the reviewer.

➜ Page 22. Section 3.4.4 Modify Operation of Grand Coulee Dam (Alternative 14). The last sentence of the first paragraph of this section appears to be worded such that the point made may temperatures below GCD. For example, on about June 28, 1997, outflow temperature below GCD is shown at nearly15 degrees C. On this same date, outflow temperature below CJD is shown to be approximately12.5 degrees C. This apparent decrease in temperature below GCD and between the two dams is consistent over the time period shown on both graphs. The reason for this cooling between sampling locations over this 50 mile stretch of river should be presented.

Temperature is a critical parameter for anadromous fish survival and a WQS being routinely violated in the Columbia River drainage. At least two rejected alternatives in the EA discuss summer river temperature reduction effects below the GCD/CJD complex (i.e., decreases due to altered operational structural schemes). Therefore, the section on temperature should be expanded. It should include data on temperature under current conditions (e.g., expand Figures 4.5.2-1 and -2) for the summer period through September. Then, projections of temperature effects anticipated under the alternatives should be developed and described in the EA, including the magnitude, duration, and extent of downstream propagation of those effects.

Based on the temperature analysis, the EA should discuss whether possible modifications to GCD/CJD for decreasing downstream temperature will be foreclosed or delayed by the preferred alternative.

➔ Page 2[illegible]. Figure 4.5.2-2. This figure shows spill volume (and outflow temperature) at CJD during spring 1997 The spill flow shown generally exceeds spill at GCD by as much as 55 kcfs. Under similar flow conditions, will the preferred alternative produce higher spill flows at CJD? Under 7Q10 flow conditions, what are the anticipated spill flows at both GCD and CJD? At 7Q10, what are the anticipated TDG levels below both GCD and CJD? These questions recur while reviewing the EA and should be addressed.

➔ Page 3[illegible]. Figures 4.5.3-2 and 4.5.3-3. These figures show river flow, spillway flow, and TDG levels at/below GCD and CJD, respectively. It appears from these figures that spill flow at CJD, compared to GCD, can be double that shown in figure 4.5.2-2. These figures appear to show that CJD spills up to 100 kcfs more than GCD whereas figure 4.5.2-2 seems to show a maximum difference of about 55 kcfs for this same period. These differences may be important in projecting TDG levels generated under the preferred alternative and should be explained. Since power generation is to be maximized at GCD and spill maximized at CJD under the preferred alternative, are spill flows at CJD anticipated to be higher than those recorded in the past? What spill is anticipated under high flow, low power demand scenarios for both GCD and CJD?

➔ Page 3[illegible]. Section 4.6.1.2 Fish in net pens. This section briefly discusses the relationship between water temperature and supersaturation. It states that higher water temperatures produce increased saturation levels. Thus, temperature effects of the various alternatives need to be discussed. The EA does indicate that spring high flow spill and outflow temperatures are not closely related (stated to probably be due to lack of pool stratification during this time of year). However, the EA does not address the relationship of temperature and TDG levels for the alternatives and whether this relationship may be important at other times of year and for

➔ Page 41. Paragraph 1 states that TDG levels in Lake Rufus Woods, "For 1997 conditions...," under the preferred alternative, "...TDG would not exceed about 125%, and would exceed 120% only about 10% *of the time during which spill occurs*" (italics added for emphasis). It is not clear whether these projections are based on the entire record from March through June, 1997, or if it pertains to only those periods when spill actually occurred at GCD. This should be clarified.

➔ General Comment: The location of data collection points (i.e., sampling locations) should be identified in the EA for all data presented in the document. It would assist the reviewer if these locations were also presented in one or more a diagrams.

➔ Pages 42 and 43 Tables 5.5.3-1 and 5.5.3-4. TDG threshold durations. These tables again present projections of various TDG levels under the preferred alternative (and compared to existing dam operations) using 1997 flow data. However, these tables contains the parenthetical phrase "(Designed for 150 kcfs)" making it unclear if the flow on which the projections are based is 150 kcfs or if this refers to deflectors designed for this flow. The phrase should be explained.

These tables should also include a calculation for a flow of 241 kcfs to make clear how the preferred alternative will perform under maximum WA state WQS flow conditions.

➔ Pages 43 and 44 Figures 5.5.3-5 and 5.5.3-6. Comparison of modelled TDG conditions at mid-Columbia dams. The flow value (and other constants and variables) used for these figures should be identified in order for the reviewer to understand what conditions the figures represent.

The forebay TDG concentration at GCD should be shown to provide a starting value. Also, a discussion of TDG production characteristics through GCD from forebay to tailwater is needed. This is necessary to understand whether the preferred alternative includes an increase in TDG through GCD at the flows being considered. Although the hydraulic capacity at full pool is listed as 260 kcfs and it is implied that no spill will be necessary or occur at GCD, the EA is not clear about this or about TDG production through GCD.

➔ Page 45. Figure 5.6.1.1-1. Rock Island 5-year average smolt index values. The various curves for TDG should be extended through the year so that the reviewer can compare TDG, summer flows, and flow augmentation episodes with smolt migration.